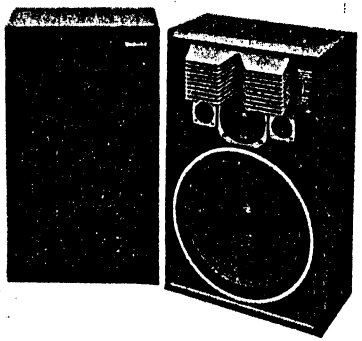
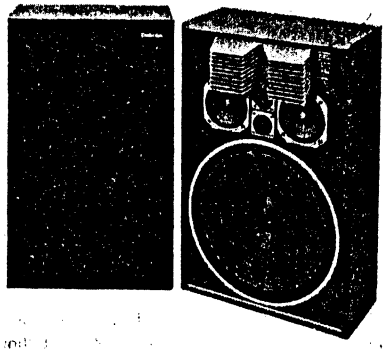
ORDER NO. SD7906-1571

Service Manual

Hi-Fi Speaker System

SB-G400 (FE),(XFEE)
SB-G400K (FEE)
SB-G500 (FE),(XFEE)
SB-G500K (FEE)





*The models SB-G400 (FE) and SB-G500 (FE) are available in far East PX only.
*The models SB-G400 (XFEE), SB-G400K (FEE), SB-G500 (XFEE) and SB-G500K (FEE) are available in European Audio club only.
*SB-G400K and SB-G500K are of black finish.

■ SPECIFICATIONS

(Specifications are subject to change without notice.)

SB-G400

Type:	4-way 5-speaker system
Speakers:	Woofer: 37 cm (14-1/2"), cone type Midrange: 12 cm (4-3/4"), cone type Tweeter: 10 cm (4"), cone type Super Tweeter: 1.4 cm (5/8"), dome type x 2
Impedance:	8 ohms
Input Power:	200 W
Output Sound Pressure Level:	96 dB/W (1.0 m)
Crossover Frequency:	1,500 Hz, 4,000 Hz, 10,000 Hz
Frequency Range:	25 Hz ~ 25 kHz
Dimensions:	41.8(W) x 66.9(H) x 29.6(D)cm (16-7/16" x 26-5/16" x 11-5/8")
Weight:	19.5 kg (43.0 lbs.)

SB-G500

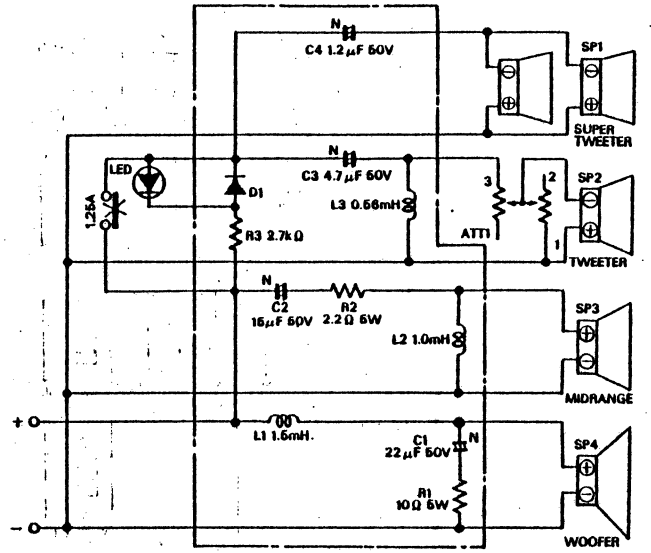
Type:	4-way 6-speaker system
Speakers:	Woofer: 41 cm (16-1/8"), cone type Midrange: 12 cm (4-3/4"), cone type x 2 Tweeter: 10 cm (4"), cone type Super Tweeter: 1.4 cm (5/8"), dome type x 2
Impedance:	8 ohms
Input Power:	300 W
Output Sound Pressure Level:	99 dB/W (1.0 m)
Crossover Frequency:	1,500 Hz, 4,000 Hz, 10,000 Hz
Frequency Range:	20 Hz ~25 kHz
Dimensions:	46.4(W) x 71.0(H) x 29.6(D)cm (18-1/4" x 28" x 11-5/8")
Weight:	21.2 kg (46.7 lbs.)

Panasonic Tokyo
Matsushita Electric Industrial Co., Ltd.

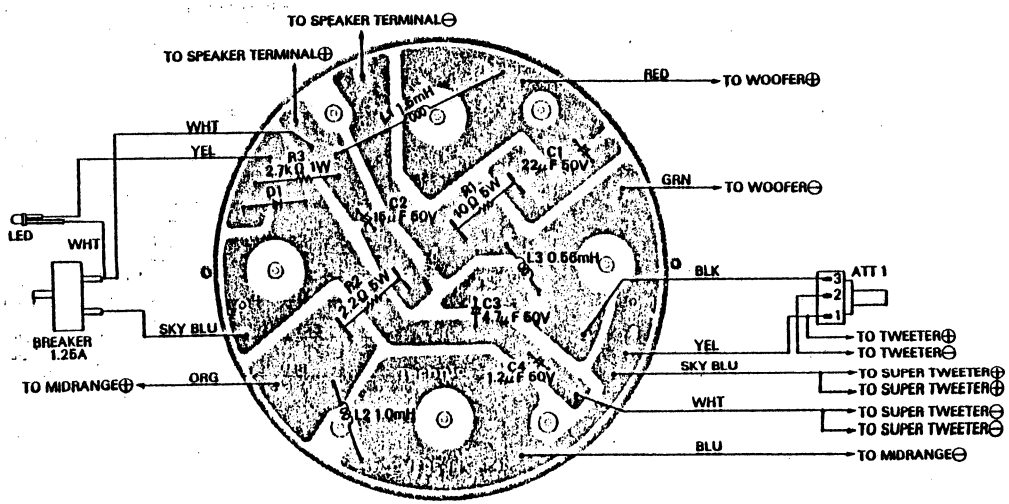
Matsushita Electric Trading Co., Ltd.

SB-G400

■ SCHEMATIC DIAGRAM (This schematic diagram may be modified at any time with the development of new technology.)

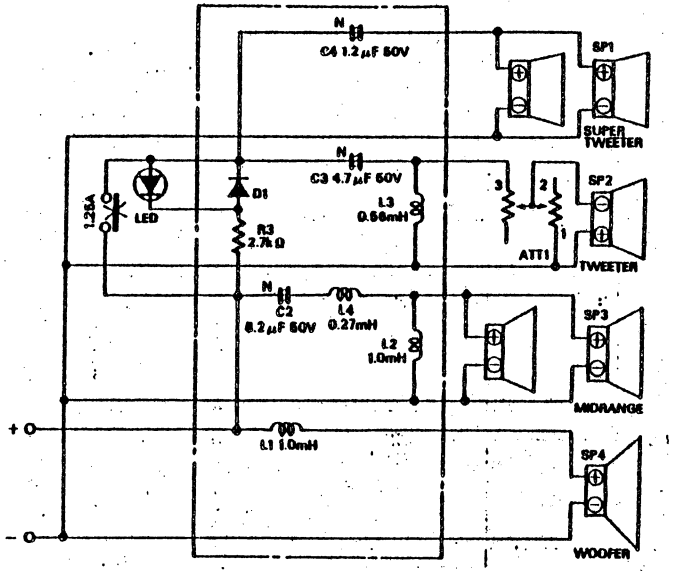


■ CIRCUIT BOARD

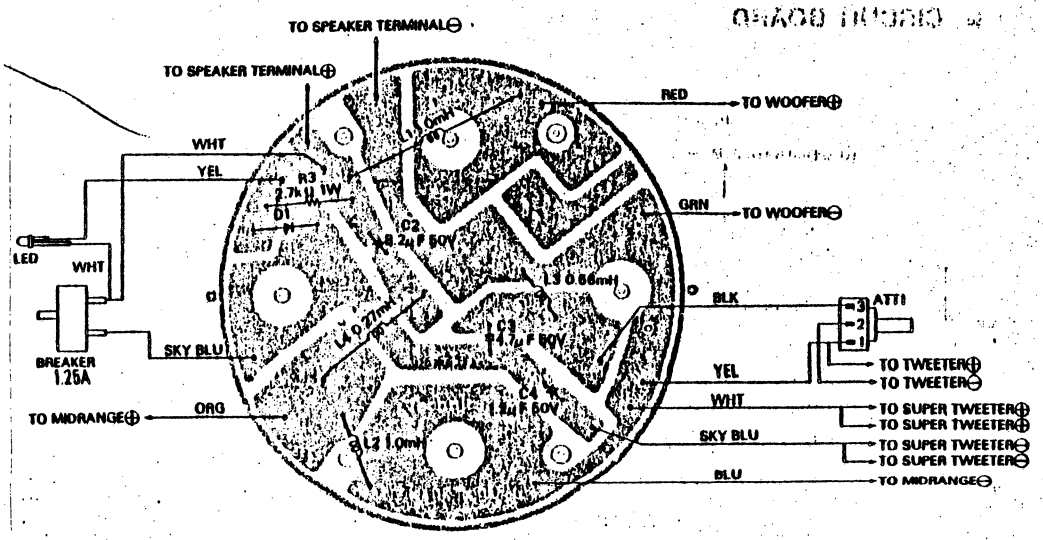


SB-G500

■ SCHEMATIC DIAGRAM (The schematic diagram may be modified at any time with the development of new technology.)



■ CIRCUIT BOARD



■ INSTALLATION OF YOUR SPEAKER SYSTEM

The sound reproduced by a speaker system is easily influenced by such factors as room acoustics and the place where it is placed in the room. Before finally deciding upon the place where the speaker systems are to be placed, please carefully read the following information.

- In general, if a speaker system is placed on the floor, near a corner or near a wall, the level of the bass sound will be increased by the reflections of the sounds from the wall and floor. Consequently, it is possible to adjust the bass sound to some extent by changing the distance between the speaker systems and the wall and/or floor. Determine the location of the speaker systems which gives the best sound reproduction, therefore, depending upon the actual conditions of the room in which they are to be used.
- If the speaker system faces toward a hard wall or a glass door or window, it is recommended that curtains or similar material be used in order to prevent undesirable resonance and sound reflection, especially of the treble sound.
- Vibrations from the speaker systems may be transmitted to a record player, causing acoustic feedback ("howling"). For best results, the speaker systems should not be placed near the record player, and should never be placed on the same table or shelf as the record player. It is often very effective, in order to prevent "howling", to place a thick piece of felt beneath the speaker systems and the record player.

■ CONNECTING THE SPEAKER SYSTEM

- Be sure to turn off the power of the amplifier before connecting the speaker systems to it.
- The impedance of this speaker system is 8 ohms. Be sure that the load impedance of the amplifier to be used is 4 ~ 16 ohms.
- The input terminals of this unit are on the rear surface of the enclosure. The polarity (+ and −) of each input terminal is indicated. When connecting speaker wires from the amplifier, be sure that the left and right connections and the plus and minus connections are made correctly.

When speaker connection wires are connected to the "system input" terminals, make the connections as shown in figure 1a.

1. Strip about 10mm(1/2") of the insulation from the wire, and then twist the core.
2. Loosen the terminal knob by turning it counterclockwise 2 or 3 times. Insert the wire into the hole on the knob until the core cannot be seen.
3. Tighten it by turning it clockwise.

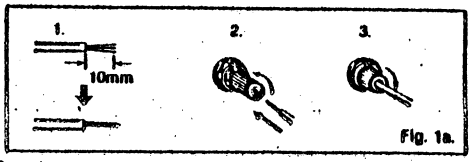


Fig. 1a.

If thick wire is used, make the connection as shown in figure 1b.

1. Strip about 20mm (1") of the insulation from the wire, and then twist the core.
2. Remove the terminal knob by turning it counterclockwise. Insert the core wire through one of the notches on the terminal base, pass it clockwise around the screw, and out from the other notch.
3. Put the terminal knob back on the screw, and tighten it by turning it clockwise.

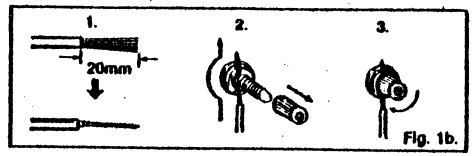


Fig. 1b.

Be sure that the core wires don't touch each other.

■ POWER-HANDLING CAPACITY

The power-handling capacity of this unit is indicated in the specifications, and is determined according to the temperature increase of the voice coils.

- If the amplifier to be used has an output power which exceeds the power-handling capacity of this unit, be sure that the amplifier's volume control is set so that excessive input is not applied to the speaker system.
- Even if the amplifier to be used has an output power which is less than the power-handling capacity of this unit, the output of the amplifier will become distorted and excessive input will be applied to the speaker units, especially for the middle and high frequencies, if the input signals to the amplifier are too large or the amplifier volume level is too high. Also note that higher-than-normal power is applied to the speaker systems if the tone controls of an amplifier or a frequency equalizer are used to raise the level of bass and/or treble sounds. When adjusting the volume level, therefore, do so with great care: confirming that amplifier output is not distorted.
- The power-handling capacity of this unit is set for reproduction of ordinary music. If an oscillator or test record is used to produce a continuous signal such as a sine wave, etc., a signal exceeding 2 watts must never be applied. Usually, 1 watt of sine wave is enough to test a speaker system when an oscillator or test disc is used.
- If the following special types of signals are applied to the speaker system, be sure to reduce the volume level of the amplifier.

1. Interstation hiss on the FM broadcast band.
2. Output from a tape deck during fast forward or rewind.
3. Acoustic feedback from a microphone or an electric musical instrument.
4. "Shock" noise which occurs when input or output connection cords are connected or disconnected or when a phono cartridge is replaced.

■ SPEAKER-PROTECTION CIRCUITRY

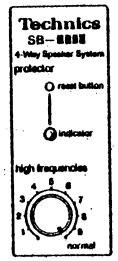
This unit includes built-in speaker-protection circuitry to protect the tweeter from damage by excessive input or an abnormal signal.

- If excessive input is supplied to the speakers, the input will be shut off by the built-in protection circuitry. At the same time, the LED indicator will light up to indicate that the protection circuitry has cut off the input to the tweeter.
- To operate the speaker-protection circuitry, please note the following instructions:

1. Before making connection to the amplifier, be sure to push the reset button on the front panel of the enclosure.
2. If sounds from the speaker system are interrupted or changed suddenly and the indicator lights up while you are using your speaker system:
   1. Reduce the amplifier volume,
   2. Check to be sure all equipment in your reproduction system is functioning properly.
   3. Wait for about 20 seconds.
   4. Push the reset button and make sure that the indicator is turned off.
5. Be careful not to increase the volume of the amplifier too much.

■ LEVEL CONTROLS

This speaker system includes a level control which can be used for continuous adjustment of the level of the high frequencies sound depending upon the room acoustics, the sound source, and the characteristics of the phono cartridge and the amplifier which are used with this speaker system, as well as your own preference. The standard setting of the level control is the "normal" position.



SB-G400

How To Remove Super Tweeter (SP1)

- Remove 8 setscrews ❺ with hexagon wrech (3mm).
- Disconnect two lead wires from speaker terminals.

How to Remove Tweeter (SP2)

- Remove diffuser.
- Remove 4 setscrews ❷ with hexagon wrech (4mm).
- Disconnect two lead wires from speaker terminals.

How to Remove Midrange (SP3)

- Remove 4 setscrews ❷ with hexagon wrech (4mm).
- Disconnect two lead wires from speaker terminals.

How To Remove Woofer (SP4)

- Remove 8 setscrews ❽ with hexagon wrech (6mm).
- Disconnect two lead wires from speaker terminals.

SB-G500

How To Remove Super Tweeter (SP1)

- Remove 8 setscrews ❺ with hexagon wrech (3mm).
- Disconnect two lead wires from speaker terminals.

How to Remove Tweeter (SP2)

- Remove diffuser.
- Remove 4 setscrews ❷ with hexagon wrech (4mm).
- Disconnect two lead wires from speaker terminals.

How to Remove Midrange (SP3)

- Remove 8 setscrews ❷ with hexagon wrech (4mm).
- Disconnect two lead wires from speaker terminals.

How To Remove Woofer (SP4)

- Remove 8 setscrews ❽ with hexagon wrech (6mm).
- Disconnect two lead wires from speaker terminals.

SB-G400 SB-G500

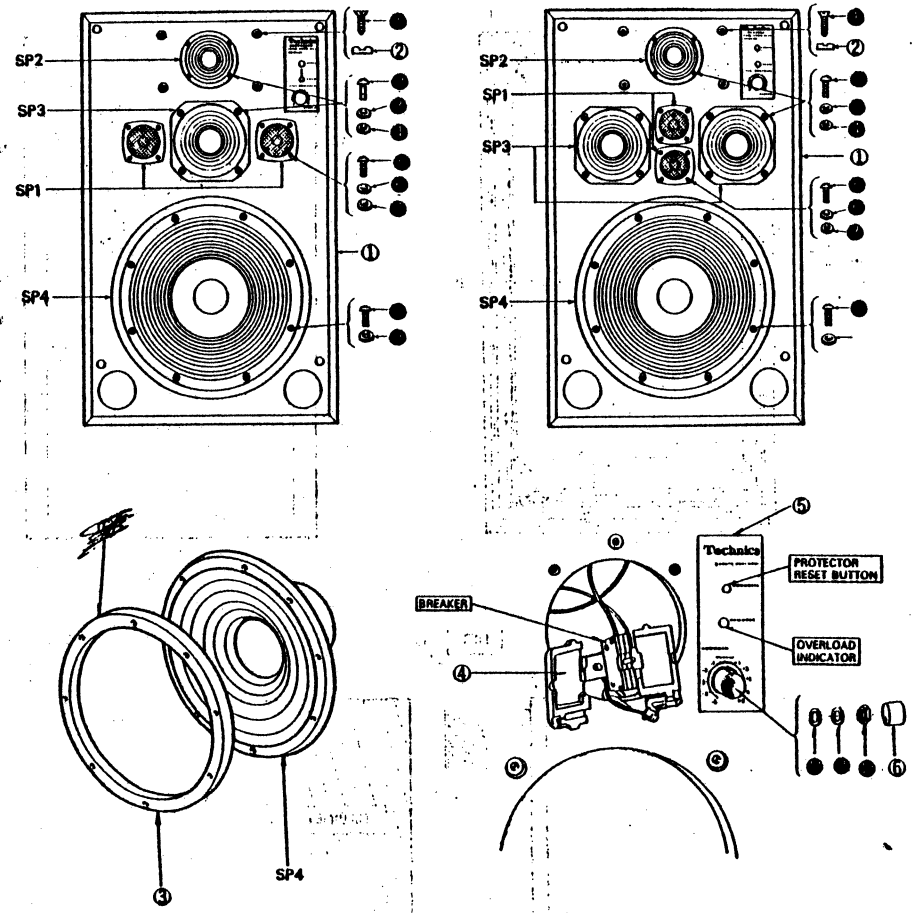
How To Remove Breaker and LED

- Remove Tweeter
- Take (4) out of Tweeter installing hole

When replacing breaker and LED for repair, make the wiring as shown in Fig. 3.

Notes: 1. Finish soldering quickly so that LED will not be excessively heated.
2. Take care not to allow short-circuiting between the ends of LED.

SB-G400 SB-G500



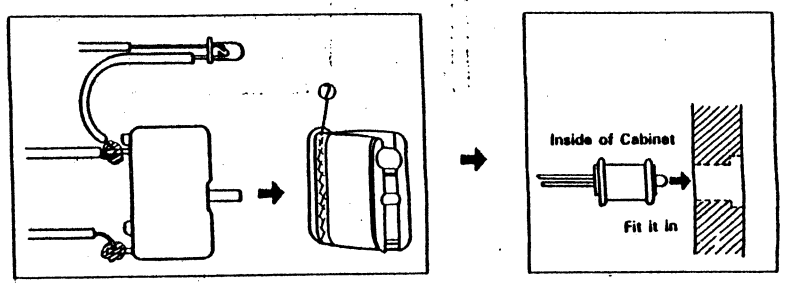
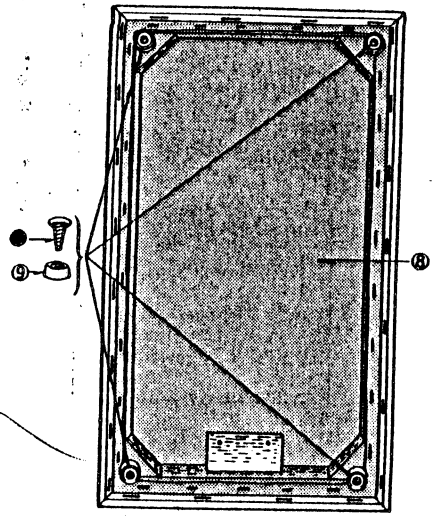
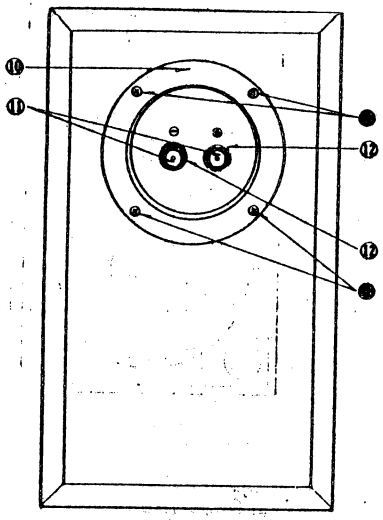


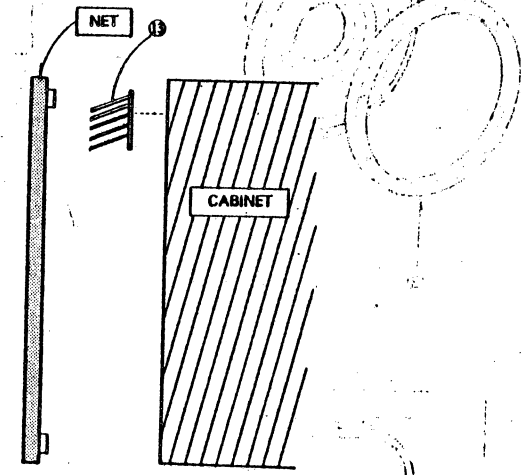
Fig. 3

SB-G400/K, SB-G500/K

SB-G400 SB-G500







■ REPLACEMENT PARTS LIST SB-G400

NOTES 1: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.

2. SB-G400(FE) → (FE)
SB-G400(XFEE) → (XFEE)
SB-G400K(FEE) → (KFEE)

Ref. No.	Part No.	Part Name & Description
SPEAKERS		
SP1	EAS14HD04S	Speaker, Super Tweeter
SP2	EAS10PH32S	Speaker, Tweeter
SP3	EAS12PM166SA	Speaker, Midrange
SP4	EAS36PL02S	Speaker, Woofer
COILS		
L1	SLCSC152KU	Coil, Choke, 1.5mH
L2	SLCSC102KU	Coil, Choke, 1.0mH
L3	SLCSC561KU	Coil, Choke, 0.56mH
RESISTORS		
R1	ERF6ZJ1008	Non-flammable, 10Ω, 6W, ±5%
R2	ERF6ZK2R2B	Non-flammable, 2.2Ω, 6W, ±10%
R3	ERG1ANJ272	Metal Oxide, 2.7kΩ, 1W, ±5%
CAPACITORS		
C1	ECEA50Y22K	Electrolytic, 22μF, 50V
C2	ECEA50Y15K	Electrolytic, 15μF, 50V
C3	ECEA50Y4R7K	Electrolytic, 4.7μF, 50V
C4	ECEA50Y1R2K	Electrolytic, 1.2μF, 50V
DIODES		
D1	MA161	Diode
	LN21CP	Light Emitting Diode
ATTENUATOR		
ATT1	EVW65AF27Z80	Attenuator
BREAKERS		
1 (except KFEE)	SSB12A801-1	Breaker, 1.25A
1 (KFEE)	SKABG400F	Cabinet
2	SKABG400F1	Cabinet
3	SHS59	Magic Tape
4	SYES4	Gasket, Woofer
5	SHG1627	Bushing
6	SGKS12	Panel Attenuator
7	SBN793-1	Knob Attenuator
	SHR9401-6	Spacer

Ref. No.	Part No.	Part Name & Description
8 (except KFEE)	SYBS11	Grille
8 (KFEE)	SYBS17	Grille
9	SHG1245-2	Net Catch
10	SWTS21	Plate, Terminal
11	SNE281-1S	Knob, Speaker Terminal
12	SGE401	Ornament (Black)
13	SYES3	Diffuser
14	SGTS10	Name Plate
SCREWS and WASHERS		
	XMS27+13FZ	Screw
	XBN4+25BVB	Screw
	XWA4BFZ	Washer
	SNW423-1	Washer
	XBN3+25BVB	Screw
	XWA3BFZ	Washer
	SHWS32C100	Washer
	XSN6+25FZ	Screw
	XWA6BFZ	Washer
	XNGS9CFZ	Nut
	XWV9FZ	Washer
	XWG9E15FZ	Washer
	XMS27+20FZ	Screw
	XMS31+13FZ	Screw
ACCESSORIES		
A1 (FE)	SQFS17	Instruction Book
A1 (XFEE, KFEE)	SQFS24	Instruction Book
A2	SPB299-6	Felt, Speaker Unit
A3	WKVF500	Cord, Speaker Unit
PACKING PARTS		
P1 (FE)	SPGS9	Carton
P1 (XFEE)	SPGS9-1	Carton
P1 (KFEE)	SPGS9-2	Carton
P2	SPSS8013	Pad, Bottom
P3	SPSS1004	Pad, Corner
P4	SPSS1004-1	Pad, Corner
P5	SPSS9004	Pad, Diffuser
P6	SPP411	Polyethylene Bag, Unit

■ REPLACEMENT PARTS LIST SB-G500

NOTES 1: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.

2. SB-G500(FE) → (FE)
SB-G500(XFEE) → (XFEE)
SB-G500K(FEE) → (KFEE)

Ref. No.	Part No.	Part Name & Description
SPEAKERS		
SP1	EAS14HD04S	Speaker, Super Tweeter
SP2	EAS10PH32S	Speaker, Tweeter
SP3	EAS12PM165SA	Speaker, Midrange
SP4	EAS38PL07S	Speaker, Woofer
COILS		
L1, L2	SLCSC102KU	Coil, Choke, 1.0mH
L3	SLCSC561KU	Coil, Choke, 0.56mH
L4	SLCSC271KU	Coil, Choke, 0.27mH
RESISTOR		
R1	ERG1ANJ272	Metal oxide, 2.7kΩ, 1W, ±5%
CAPACITORS		
C2	ECEA50Y8R2K	Electrolytic, 8.2μF, 50V
C3	ECEA50Y4R7K	Electrolytic, 4.7μF, 50V
C4	ECEA50Y1R2K	Electrolytic, 12μF, 50V
DIODES		
D1	MA161	Diode
	LN21CP	Light Emitting Diode
ATTENUATOR		
ATT1	EVW65AF27Z80	Attenuator
BREAKERS		
1 (except KFEE)	SSB12A801-1	Breaker, 1.25A
1 (KFEE)	SKABG600F	Cabinet
2	SKABG600F1	Cabinet
3	SHS59	Magic Tape
4	SYES5	Gasket, Woofer
5	SHG1627	Bushing
6	SGKS12-1	Panel Attenuator
7	SBN793-1	Knob, Attenuator
8 (except KFEE)	SHR9401-6	Spacer
	SYBS12	Grille

Ref. No.	Part No.	Part Name & Description
8 (KFEE)	SYBS18	Grille
9	SHG1245-2	Net Catch
10	SWTS21	Plate, Terminal
11	SNE281-1S	Knob, Speaker Terminal
12	SGE401	Ornament (Black)
13	SYES3	Diffuser
14	SGTS11	Name Plate
SCREWS and WASHERS		
	XMS27+13FZ	Screw
	XBN4+25BVB	Screw
	XWA4BFZ	Washer
	SNW423-1	Washer
	XBN3+25BVB	Screw
	XWA3BFZ	Washer
	SHWS32C100	Washer
	XSN6+25FZ	Screw
	XWA6BFZ	Washer
	XNGS9CFZ	Nut
	XWV9FZ	Washer
	XWG9E15FZ	Washer
	XMS27+20FZ	Screw
	XMS31+13FZ	Screw
ACCESSORIES		
A1 (FE)	SQFS18	Instruction Book
A1 (XFEE, KFEE)	SQFS27	Instruction Book
A2	SPB299-6	Felt, Speaker Unit
A3	WKVF500	Cord, Speaker Unit
PACKING PARTS		
P1 (FE)	SPGS10	Carton
P1 (XFEE)	SPGS10-1	Carton
P1 (KFEE)	SPGS10-2	Carton
P2	SPSS6014	Pad, Bottom
P3	SPSS1004	Pad, Corner
P4	SPSS1004-1	Pad, Corner
P5	SPSS9004	Pad, Diffuser
P6	SPPS6	Polyethylene Bag, Unit

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